

Abstract of EP0669760

The receiver allows individual programme information selection from the programme information signals transmitted with the digital television signals, via a TDM mode. An operating device (2) is coupled to a microprocessor (4), receiving the programme information signals from a demultiplexer (3), coupled to the receiver (1), with selection of appropriate programme information in accordance with the user's individual interest profile, held in a read-only memory (10). Pref. the operating device is used to enter data corresponding to the individual interest profiles for a number of different users and/or the microprocessor evaluates the television viewing habits of the user to provide the interest profile data for the read-only memory.

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The invention relates to a receiver to the generation of an individual program preview from signals, which correspond to a program summary over a variety of television programmes and become in the time division with digital television signals transmitted.

At present made in the television engineering a transition from analogue to digital transmission systems. In this connection also the satellite transmission becomes switched. By means of a source coding procedure after the MPEG standard a data compression is possible, which permits a particularly efficient transmission. While in the analogue technique on a satellite transponder of for example 33 MHz bandwidth becomes so far a television programme transmitted, a distribution of 5 - 10 programmes same quality on the same transponder is possible with the digital technique. Therefore by means of several transponders a difficult-to-understand variety of television programmes can become transmitted.

This variety of programmes requires a multiplex with appropriate management of the data. Also this aspect is in the MPEG standard controlled. Here will be provided to divide the data streams into blocks which become transmitted in the time division. A programme consists different type (video information, audio information, auxiliary information) of several data streams, the so called elementary data streams. The elementary data streams of a programme become assembled in a program multiplexer a program data stream. Different program data streams become composite in a transportation multiplexer the transportation

data stream. The single data blocks, which can have for example a length of 188 byte, are provided in each case with synchronisation and identification bytes, in order to make for the receiver possible the selection of the proper blocks to the decoding and representation of the information on a television receiver.

The transportation data stream becomes for example transmitted with the program offerer composite and then over a so called uplink the satellite. This converts the signal and distributed it for the satellite direct receipt with the spectator.

An information of the viewer over this variety of television programmes by means of conventional television newspapers would let the scope of these television newspapers in no longer justifiable measure rise. Further the clarity would be given no longer over the television programme.

The object of the invention consists of pointing a new path out how a viewer provided with this variety of television programmes a clear program overview can become the order.

This object becomes dissolved by the features indicated in the claims.

The advantages of the invention consist in particular of the fact that the receiver continuous and automatic from a program summary transmitted over the television signal transmission path in the time division with digital television signals stores a program preview created and this adapted to the individual interest profile of a spectator in the receiver, so that it is callable if necessary immediately. This individual program preview can become for example as program suggestion in form of an alphanumeric listing of five television broadcasts, which still at the same day emitted to become, at the screen of a television receiver, created of the receiver, shown, so that troublesome examining remains saved for the user one however designed program newspaper.

The 3 realization forms indicated in the claims 2 and have the advantage that the individual interest profile, using whose the arithmetic unit of the receiver the program suggestion created, by which user is more predeterminable by means of the operation unit.

With the embodiment the determined arithmetic unit the individual interest profile automatic by evaluation of the Sehgewohnheiten of the user, indicated in the claim 4, so that a manual input of the interest profile is not necessary.

By means of the receiver indicated in the claim 5 the user on the forthcoming beginnings becomes it interesting transmission attentively made.

The advantages of the receiver indicated in the claim 6 consist of the fact that the user can cause always then, if it wishes this the display of the individual program preview.

With the receiver according to claim 7 the made display of the individual program preview after switching on of the receiver automatic on, without it requires a key operation on the part of the user.

By means of the receiver according to claim 8 assured becomes that the user does not miss him interesting transmission. This becomes that with receiver a change-over on the interesting transmission made and with not switched on receiver, already switched on,

achieved by the fact, i.e. with a receiver, who is in the readiness enterprise, a recording of the transmission on a record carrier performed becomes.

The advantage of the receiver with the features indicated in the claim 9 consists of the fact that the individual program preview can become for example printed by means of a printer, so that it is available pressure in writing.

In the following the invention becomes exemplary on the basis the fig more near explained.

This shows a television receiver with a receiving section 1, an operation unit 2, a demultiplexer 3, an arithmetic unit 4, an audio signal processing circuit 5, a video signal processing circuit 6, a speaker unit 7, a keying in circuit 8, a screen 9, a memory unit 10, a DOS building block 11 (display on screen) and a display 12, for example a light emitting diode.

Receiving section the 1 makes a data stream available at its output, which is in accordance with the MPEG standard constructed and contains in the time division digital picture, clay/tone and data signals of a variety of television programmes.

In this data stream according to the invention of signals is contained, which correspond to a program summary over the variety of television programmes and for each television programme identifiers contained. With these identifiers it concerns classification criteria, which mark each single transmission as particularly worth seeing, worth seeing, average or less worth seeing and/or than duly to a certain topic. Possible topics are messages, culture, sport, politics, features, etc.

In the demultiplexer 3 a made separation of the single signals from each other. The video signals become the video signal processing circuit 6 and from there out 8 supplied in the form of R, G, B-signals of the keying in circuit. The audio signals become the audio signal processing circuit 5 supplied and from there 7 forwarded to the speaker unit. The signals, which correspond to the program summary over the variety of television programmes, become the arithmetic unit 4, with which it concerns a microcomputer, supplied.

The arithmetic unit determined, if the receiver is in the switched on state or in the readiness enterprise, continuous and automatic whether in you are contained the supplied program summary transmissions, which belong to an individual interest profile of an user.

The data, which correspond to the individual interest profile of the user, become 2 entered in accordance with a first embodiment of the invention from the user unique after the first start-up of the receiver by means of the operation unit and in a not drawn memory of the arithmetic unit 4 stored. For example all features belong to the individual interest profile of the user, which are in accordance with the identifier as in-classified particularly worth seeing.

The arithmetic unit 4 selected in accordance with the aforementioned example from it the supplied program summary those for example five as particularly relevant classified features, those on the basis of the momentary time next sent and put down the associated data therefore become into form of an individual program preview in the non volatile memory unit 10.

In accordance with a favourable development of the invention 2 interest profiles individual of several users can become entered by means of the operation unit. In addition the arithmetic unit 4 beside the data, which correspond to the respective individual interest profile, by means of the operation unit 2 becomes also a user identification supplied. The later retrieval of the desired in each case individual program preview made likewise using the associated user identification.

In accordance with an other embodiment of the invention the arithmetic unit is 4 factory-installed in such a manner programmed that it in the later equipment enterprise with the user by evaluation of the Sehgewohnheiten of the user automatic data determined, which correspond to the individual interest profile of the user. In addition the arithmetic unit 4 surveys the viewing time of the programmes of the different topics, the added viewing time of the different topics in each case to the creation of an histogram and determined from it those the individual interest profile corresponding data. These become then - like already above described - used to the determination of the individual program preview.

Further the arithmetic unit is 4 factory-installed in such a manner programmed that it in the later equipment enterprise with the user the continuous initial times of the transmissions stored in the memory unit 10, which belong to the individual interest profile of the user, with which momentary time compares. The initial time of the transmission and the other transmission-based data, which becomes likewise transmitted in the frame of the program preview, are likewise in the memory unit 10 stored. If the determined time difference falls below a predetermined threshold, which can amount to for example an hour, then the generated arithmetic unit 4 a control signal for the speaker unit 7 and/or the light emitting diode 12, so that the user acoustic and/or optical on the forthcoming beginnings its interest profile of an associated transmission becomes attentively made. The momentary time receives the arithmetic unit by a real time clock contained in the receiver or by Echtzeitsignale, which become transmitted over the television transmission channel from the transmitter to the receiver.

The operation unit 2 of the receiver exhibits a key, becomes 9 shown with whose operation the individual program preview on the screen, stored in the memory unit 10. This representation becomes of the arithmetic unit 4, which recognizes the entered control instruction, by drive of the DOS building block 11 initiated. R provided by the DOS building block 11, G, B-signals, which correspond to the individual program preview, become 9 supplied over the keying in circuit 8 the screen.

In accordance with a favourable development of the invention bottom control 9 shown by the arithmetic unit 4 after switching on of the receiver on from the off state or the readiness enterprise the individual program preview stored in the non volatile memory unit 10 becomes automatic on the screen. Thus the user - to have to enter without other control instructions - becomes informed over forthcoming transmissions, which belong to its individual interest profile.

Further the arithmetic unit recognizes 4 automatic whether to the time of the beginning of an associated transmission of the receivers to the reception of this transmission is switched on for the individual interest profile of the user or not. This is not the case, the initiated arithmetic unit 4 an in and/or a change-over of the receiver to the playback of the transmission mentioned on the screen or to the recording of the transmission mentioned on a record carrier. By the fact for example achieved become that the receiver, who is straight to the playback of a transmission set little interesting for the user becomes automatic transmission switched associated on the reception that the individual interest profile of the

user, so that the user does not miss the beginning of this transmission. Further by the fact for example achieved can become that recorded in case of the absence of the user the individual interest profile of the user an associated transmission becomes on a record carrier, so that the user can regard the transmission deferred complete. The advantage of this feature consists of the fact that a recording made, without the user must program a recording device, for example a video recorder, in the sense of a recording programming.

Further the arithmetic unit is 4 in such a manner programmed that it makes signals available, which correspond to the individual program preview at an output of the receiver in speech on a control instruction. For example if a printer is connected to this output, the user has the possibility to leave itself its individual program preview in Papierform expressions.

An other advantage of the invention consists of the fact that always an updated individual program preview is to the user at the disposal, since the arithmetic unit 4 deletes the data of those transmissions, whose radiation is already ended, in the memory unit 10 and instead to the memory unit 10 takes up the data of an other transmission, whose radiation is still approaching.

It is of course also possible, the number of the transmissions, which belong to the individual program preview of the user, i.e. their data in the memory unit 10 stored are, smaller or larger to select as described above. Further the individual program preview can extend also to a time interval predeterminable of the user. Also the time, becomes attentively made to which the user optical or acoustic on the forthcoming beginnings the individual interest profile of an associated transmission, can become differently selected than with the described above embodiment.